

CLAIMS

1. Method for producing dimensionally accurate metal foam made of foamable, powder-metallurgically produced metal half finished product with a melting point >200°C by:

- introducing the material foamable at T>200°C into a mould which is heat resistant up to the melting point of the foamable material and having a expansion coefficient less than 3 K⁻¹, preferably <1K⁻¹
- controlled heating of the foamable material in the mould under foaming with the help of an radiation emitter whose energy emission is controlled, that are applied on or through the mould; and
- removal of the thus foamed foam product from the mould.

2. Method as per claim 1, characterized therein, that the mould is at least partly diatherman.

3. Method according to one of the previous claims, characterized therein, that the mould is cooled off in a controlled manner after heating.

4. Method according to one of the previous claims, characterized therein, that the foaming is conducted under controlled gas atmosphere having a pressure of up to 5 bar.

5. Method according to one of the previous claims, characterterized therein, that separating agent is used between the semi-finished metal product and the mould suface.

6. Method according to one of the previous claims, characterized therein, that the casting mould is open at least at one side.

7. Method as per claims 1- 6, characterized therein, that the casting mould is open on both sides, whereby the foamable material is introduced on one side into the mould, and within the mould a selected zone is heated in: a controlled manner and foamed in such a way, that it comes out on the other side of the mould strand-like in a foamed condition.

8. Method according to one of the previous claims, characterized therein, that the radiation emission of the radiation emitter is monitored by sensors and controlled according to the monitoring signal.

9. Method according to one of the previous claims, characterized therein, that the casting mould is thin-walled, whereby at least one wall thereof should preferably have a thickness of 2 - 20 mm, better still a thickness of 1- 10 mm and, especially preferred, 2 - 4mm.

10. Method according to one of the previous claims, characterized therein, that at least one wall of the casting mould is externally supported with supports.

11. Method according to one of the previous claims, characterized therein, that the supports are controllable and support the casting mould against a base plate having lower temperature.

12. Device for producing dimensionally accurate thermally foamed metal foam parts, characterized by,

- a thin-walled casting mould, which is stable at the melting temperature of the metal foam and has a expansion coefficient of the magnitude of graphite and yttrium oxide;
- a controllable radiation unit; and
- a control system which controls the radiation mechanism on the basis of measurement of a radiation measuring unit.

13. Device as per claim 12, characterized therein, that the thin-walled casting mould which is stable at the melting temperature of the metal foam has a expansion coefficient of the magnitude of graphite and yttrium oxide and is also diatherman.

14. Device according to claims 12 - 13, characterized therein, that the casting mould can be closed gas-tight and has at least one gas inlet and outlet.

15. Device according to claims 13 - 14, characterized therein, that the casting mould is open on both sides.